

REMARKS

Claim 1 has been amended. Claims 22-38 have been canceled. Claims 39-43 have been added. Therefore, claims 1-21 and 39-43 are pending. Applicants reserve the right to pursue the original claims in this and other related applications.

Applicants appreciate the Examiner's acknowledgement that claims 11-21 contain allowable subject matter. Withdrawal of all outstanding rejections is respectfully requested in light of the foregoing amendments and the following remarks.

Claims 1 and 5-10 stand rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Pub. No. 2005/0023553 to Rhodes ("Rhodes"), which has since issued as Patent No. 6,900,484. The rejection is traversed.

The present invention relates to a self-masking method of angled implantation of a dopant into a charge collection region and forming a contact thereto. As such, independent claim 1 recites "implanting a dopant at an angle relative to sidewalls of [a slot in an insulating layer] into [a] charge collection region to form a doped area in said charge collection region; and forming a contact within said slot, the contact being in electrical connection to said doped area."

Rhodes relates to the creation of an improved photodiode region to minimize the potential for an undesirable barrier potential. Rhodes teaches forming the surface layer 388 of the pinned photodiode using an angled implant. With respect to FIG. 16, referenced by the Office Action, Rhodes teaches formation of doped, surface region 388 using an angled implant. There is no disclosure in Rhodes that this implant occurs through a slot in an insulating layer, as recited by claim 1. Further, even assuming *arguendo* that the surface layer 388 is comparable to the claimed doped area, Rhodes clearly does not teach or suggest "forming a contact. . . in electrical connection to said doped area."

For at least these reasons, Rhodes does not anticipate the claimed invention as recited by claim 1. Claims 2-10 each depend from claim 1 and contain all of the limitations recited by claim 1. For at least these reasons, and for the unique combination of elements recited therein, each of claims 2-10 is also allowable.

Similarly, new independent claim 39 recites a method comprising, *inter alia*, “forming a slot in the passivation layer in an area over a floating diffusion region of said pixel sensor cell; implanting a dopant at an angle relative to sidewalls of the slot through said slot into said floating diffusion region.” As stated above, Rhodes’ teachings relate to the formation of a doped region as part of a photodiode; Rhodes does not teach or suggest “implanting a dopant at an angle relative to sidewalls of the slot through said slot [in the passivation layer] into [a] floating diffusion region,” as recited by claim 39. Claims 40-43 each depend from claim 39 and for at least these reasons, each of claims 39-43 is submitted to be allowable.

Claims 2-4 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Rhodes. The rejection is traversed. For at least the reasons stated above, Rhodes does not teach or suggest all of the claim limitations recited by these claims.

In addition, in accordance with 35 U.S.C. 103(c), Rhodes is not a proper 103(a) reference because it “qualifies as prior art only under. . . subsection (c). . . of section 102. . . [and] the subject matter [of Rhodes] and the claimed invention were, at the time the invention was made. . . subject to an obligation of assignment to the same person.” As evidenced by the assignment submitted with the present invention and by the face of the Rhodes patent, both inventions were, at the time of invention, under an obligation of assignment to Micron Technology, Inc. Accordingly, Rhodes is not a proper section 103 reference, and withdrawal of the rejection is requested.

In view of the above amendment, applicant believes the pending application is in condition for allowance. Favorable action on claims 1-21 and 39-43 is solicited.

Dated: July 14, 2005

Respectfully submitted,

By 

Thomas J. D'Amico

Registration No.: 28,371

Megan S. Woodworth

Registration No.: 53,655

DICKSTEIN SHAPIRO MORIN &

OSHINSKY LLP

2101 L Street NW

Washington, DC 20037-1526

(202) 785-9700

Attorneys for Applicant